



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246



**D119-796-241TRN**  
**Job Sheet 201875**



**Part No:** D119-796-241TRN

**Job Qty:** 1 pcs

**Part Name:** Crosstube Turning Detail



**Part Weight:** 0 lbs

**Status:** New

**Priority:** Medium

**Job Created:** 10/16/19

**Job Tracking No:**

**Due Date:** 10/30/19

**Created By:** Marie Lajeunesse

**Type:** Stock

**Description:**

**Note:** DWG RD119-796 REV.K IPP REV A RQ 14/05/27 VERIFIED BY DD IPP REV:B 16.05.04 AS PER DWG REV.I  
DD VERF:JLM

**Ship Via:**

### Bill of Materials

### Job Routing

| Op<br>No | Operation            | Qty      | Start Date | Due<br>Date | Standard     |            | Workcenter/Supplier    |  | Lead<br>Time          | Sign-off                     |
|----------|----------------------|----------|------------|-------------|--------------|------------|------------------------|--|-----------------------|------------------------------|
|          |                      |          |            |             | Setup<br>Hrs | Run<br>Hrs | Workcenter / Supplier  |  |                       |                              |
| 100      | Mori Seiki TL-40 - 1 | 1<br>pcs |            | 10/30/19    | 1.00         | 1.72       | Mori Seiki TL-40 - 1   |  |                       | DAS<br>66 2019/10/21<br>9-89 |
| 110      | QC 2                 | 1<br>pcs |            | 10/30/19    | 0.00         | 0.00       | QC 2 - 1               |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 12              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 14              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 17              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 19              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 2               |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 20              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 22              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 23              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 25              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 32              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 33              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 35              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 39              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 4               |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 40              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 44              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 45              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 48              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 49              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 50              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 51              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 52              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 57              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 62              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 63              |  |                       |                              |
|          |                      |          |            |             |              |            | QC 2 - 8               |  |                       | DAS                          |
|          |                      |          |            |             |              |            | QC 2 - 66              |  |                       | 66 2019/10/21                |
|          |                      |          |            |             |              |            | QC 2 - 64              |  |                       | 9-89                         |
|          |                      |          |            |             |              |            | Plex 10/16/19 10:09 AM |  | Dart.lajeunesse.marie |                              |

Plex 10/16/19 10:09 AM Dart.lajeunesse.marie

|     |                            |   |          |           |                            |                   |
|-----|----------------------------|---|----------|-----------|----------------------------|-------------------|
|     |                            |   |          |           | QC 2 - 65                  |                   |
|     |                            |   |          |           | QC 2 - 5                   |                   |
|     |                            |   |          |           | QC 2 - 71                  |                   |
|     |                            |   |          |           | QC 2 - 73                  |                   |
|     |                            |   |          |           | QC 2 - 69                  |                   |
| 120 | Mori Selki TL-40 - 1 - B4B | 1 | 10/30/19 | 1.00 1.72 | Mori Selki TL-40 - 1 - B4B | DAS 66 2019/10/02 |
|     | pcs                        |   |          |           |                            | 9-89              |
| 130 | QC 2                       | 1 | 10/30/19 | 0.00 0.00 | QC 2 - 1                   |                   |
|     | pcs                        |   |          |           | QC 2 - 12                  |                   |
|     |                            |   |          |           | QC 2 - 14                  |                   |
|     |                            |   |          |           | QC 2 - 17                  |                   |
|     |                            |   |          |           | QC 2 - 19                  |                   |
|     |                            |   |          |           | QC 2 - 2                   |                   |
|     |                            |   |          |           | QC 2 - 20                  |                   |
|     |                            |   |          |           | QC 2 - 22                  |                   |
|     |                            |   |          |           | QC 2 - 23                  |                   |
|     |                            |   |          |           | QC 2 - 25                  |                   |
|     |                            |   |          |           | QC 2 - 32                  |                   |
|     |                            |   |          |           | QC 2 - 33                  |                   |
|     |                            |   |          |           | QC 2 - 35                  |                   |
|     |                            |   |          |           | QC 2 - 39                  |                   |
|     |                            |   |          |           | QC 2 - 4                   |                   |
|     |                            |   |          |           | QC 2 - 40                  |                   |
|     |                            |   |          |           | QC 2 - 44                  |                   |
|     |                            |   |          |           | QC 2 - 45                  |                   |
|     |                            |   |          |           | QC 2 - 48                  |                   |
|     |                            |   |          |           | QC 2 - 49                  |                   |
|     |                            |   |          |           | QC 2 - 50                  |                   |
|     |                            |   |          |           | QC 2 - 51                  |                   |
|     |                            |   |          |           | QC 2 - 52                  |                   |
|     |                            |   |          |           | QC 2 - 57                  |                   |
|     |                            |   |          |           | QC 2 - 62                  |                   |
|     |                            |   |          |           | QC 2 - 63                  |                   |
|     |                            |   |          |           | QC 2 - 8                   | DAS 66 2019/10/02 |
|     |                            |   |          |           | QC 2 - 66                  | 9-89              |
|     |                            |   |          |           | QC 2 - 64                  |                   |
|     |                            |   |          |           | QC 2 - 65                  |                   |
|     |                            |   |          |           | QC 2 - 5                   |                   |
|     |                            |   |          |           | QC 2 - 71                  |                   |
|     |                            |   |          |           | QC 2 - 73                  |                   |
|     |                            |   |          |           | QC 2 - 69                  |                   |
| 140 | QC 8                       | 1 | 10/30/19 | 0.00 0.00 | QC 8 - 12                  |                   |
|     | pcs                        |   |          |           | QC 8 - 14                  |                   |
|     |                            |   |          |           | QC 8 - 17                  |                   |
|     |                            |   |          |           | QC 8 - 20                  |                   |
|     |                            |   |          |           | QC 8 - 25                  |                   |
|     |                            |   |          |           | QC 8 - 3                   |                   |
|     |                            |   |          |           | QC 8 - 32                  |                   |
|     |                            |   |          |           | QC 8 - 33                  |                   |
|     |                            |   |          |           | QC 8 - 35                  |                   |
|     |                            |   |          |           | QC 8 - 39                  |                   |
|     |                            |   |          |           | QC 8 - 4                   |                   |
|     |                            |   |          |           | QC 8 - 44                  |                   |
|     |                            |   |          |           | QC 8 - 45                  |                   |
|     |                            |   |          |           | QC 8 - 49                  |                   |
|     |                            |   |          |           | QC 8 - 58                  |                   |
|     |                            |   |          |           | QC 8 - 8                   |                   |
|     |                            |   |          |           | QC 8 - 9                   |                   |
|     |                            |   |          |           | QC 8 - 68                  |                   |

|     |                               |          |          |           |                           |                   |
|-----|-------------------------------|----------|----------|-----------|---------------------------|-------------------|
|     |                               |          |          |           | QC 8 - 67                 |                   |
|     |                               |          |          |           | QC 8 - 1 (A)              |                   |
|     |                               |          |          |           | QC 8 - 47                 |                   |
|     |                               |          |          |           | QC 8 - 40                 |                   |
|     |                               |          |          |           | QC 8 - 52                 |                   |
|     |                               |          |          |           | QC 8 - 23                 |                   |
|     |                               |          |          |           | QC 8 - 57                 |                   |
|     |                               |          |          |           | QC 8 - 76                 |                   |
|     |                               |          |          |           | QC 8 - 61                 |                   |
|     |                               |          |          |           |                           | DAS<br>76<br>9-89 |
| 145 | Crosstubes - 2 - B4B          | 1<br>pcs | 10/30/19 | 0.00 0.45 | Crosstubes - 1 - B4B      |                   |
|     |                               |          |          |           | Crosstubes - 2 - B4B      |                   |
|     |                               |          |          |           | Crosstubes - 3 - B4B      |                   |
|     |                               |          |          |           | Crosstubes - 4 - B4B      |                   |
| 150 | Handfinish - 1-1 Chemical-B4B | 1<br>pcs | 10/30/19 | 0.00 0.40 | Handfinish - 1 - 1 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 2 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 3 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 4 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 5 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 6 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 7 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 8 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 9 - B4B  |                   |
|     |                               |          |          |           | Handfinish - 1 - 10 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 11 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 12 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 13 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 14 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 15 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 16 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 17 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 18 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 19 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 20 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 21 - B4B |                   |
|     |                               |          |          |           | Handfinish - 1 - 22 - B4B |                   |
| 160 | QC 7                          | 1<br>pcs | 10/30/19 | 0.00 0.00 | QC 7 - 10                 |                   |
|     |                               |          |          |           | QC 7 - 13                 |                   |
|     |                               |          |          |           | QC 7 - 14                 |                   |
|     |                               |          |          |           | QC 7 - 15                 |                   |
|     |                               |          |          |           | QC 7 - 17                 |                   |
|     |                               |          |          |           | QC 7 - 18                 |                   |
|     |                               |          |          |           | QC 7 - 19                 |                   |
|     |                               |          |          |           | QC 7 - 2                  |                   |
|     |                               |          |          |           | QC 7 - 28                 |                   |
|     |                               |          |          |           | QC 7 - 3                  |                   |
|     |                               |          |          |           | QC 7 - 30                 |                   |
|     |                               |          |          |           | QC 7 - 34                 |                   |
|     |                               |          |          |           | QC 7 - 36                 |                   |
|     |                               |          |          |           |                           |                   |

DSB 11/22/2019

NOV 27 2019

|                                                                                                                          |                             |   |          |           |                        |                |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------|---|----------|-----------|------------------------|----------------|
|                                                                                                                          |                             |   |          |           | QC 7 - 37              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 41              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 47              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 48              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 51              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 58              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 59              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 60              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 9               |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 68              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 50              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 67              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 40              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 24              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 43              |                |
|                                                                                                                          |                             |   |          |           | QC 7 - 61              | DAS            |
|                                                                                                                          |                             |   |          |           | QC 7 - 81              | 76             |
|                                                                                                                          |                             |   |          |           | QC 7 - 76              | 9-89           |
|                                                                                                                          |                             |   |          |           | QC 7 - 79              |                |
| 170                                                                                                                      | Packaging 3-1 - Stock - B4B | 1 | 10/30/19 | 0.00 0.00 | Packaging 3 - 1 - B4B  |                |
|                                                                                                                          | pcs                         |   |          |           | Packaging 3 - 2 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 3 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 4 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 5 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 6 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 7 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 8 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 9 - B4B  |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 10 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 11 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 12 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 13 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 14 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 15 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 16 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 17 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 18 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 19 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 20 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 21 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 22 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 23 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 24 - B4B | BSB 11/27/2019 |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 25 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 26 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 27 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 28 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 29 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 30 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 31 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 32 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 33 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 34 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 35 - B4B |                |
|                                                                                                                          |                             |   |          |           | Packaging 3 - 36 - B4B | DAS            |
| 180                                                                                                                      | QC 21 - FG                  | 1 | 10/30/19 | 0.00 0.00 | QC 21 - FG - 21        | 21             |
|                                                                                                                          | pcs                         |   |          |           | QC 21 - FG - 70        | 9-89           |
|                                                                                                                          |                             |   |          |           | QC 21 - FG - 53        |                |
| Part Op 100 - 1-Fill tube with sand & install plugs on both ends as per Folio FB298 2-Turn first side as per Folio FB298 |                             |   |          |           |                        |                |

Descriptions: **110** - (QC2- Inspect parts off machine FAI/FAIB)  
**120** - 1-Turn second side as per Folio FB298  
**130** - (QC2- Inspect parts off machine FAI/FAIB)  
**140** - (QC8- Inspect parts - second check)  
**145** - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.  
**150** - 1- Handfinish X-TUBE INSIDE AND OUT. ALODINE AND ACID ETCH X-TUBE AS PER DWG USE RED SCOTCH BRITE PAD.  
**160** - (QC7-Inspect Chemical Conversion Coat)  
**170** - (Identify as per dwg & Stock Location: \_\_\_\_\_) LOCATION : LG014  
**180** - (QC21- Final Inspection - Work Order Release)

## Job BOM

| Part / Item | Component Name     | Quantity     | Operation                | Container |
|-------------|--------------------|--------------|--------------------------|-----------|
| D6023-106   | Crosstube Material | 1 pcs (1 ea) | 100-Mori Seiki TL-40 - 1 | SOU837    |

## Job Allocations

| Operation                | Component Part | Required | Inventory | Allocated |
|--------------------------|----------------|----------|-----------|-----------|
| 100-Mori Seiki TL-40 - 1 | D6023-106      | 1        | 6         | 0         |

## Part Specifications

Specifications could not be found.



Container No: S224448



Part: D119-796-241TRN

Job No: 201875

Serial No/Batch: S224448

Revision: K

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.  
 1270 Aberdeen Street  
 Hawkesbury, ON K6A 1K7  
 CANADA  
 TEL.: 1 813 832-8200  
 Email: sales@dartaero.com  
 www.dartaerospace.com

Plex 10/16/19 10:09 AM Dart.lajeunesse.marie

Date: 10/21/19

③

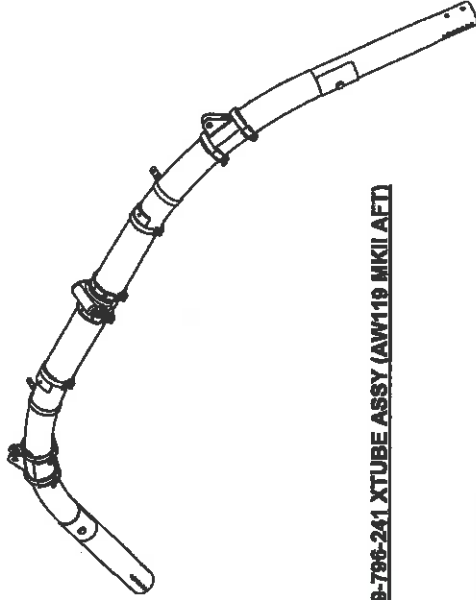
|                                                         |                                     |
|---------------------------------------------------------|-------------------------------------|
| <b>DART AEROSPACE LTD</b>                               | <b>Work Order:</b> 201875           |
| <b>Description: Crosstube Assembly (AW119 MKII Aft)</b> | <b>Part Number: D119-796-241TRN</b> |
| <b>Inspection Dwg: D119-796-241 Rev: K</b>              | <b>Page 1 of 2</b>                  |

**FIRST ARTICLE INSPECTION CHECKLIST**

|        | Inspection Sheet<br>Drawing Dimension | Tolerance     | Actual<br>Dimension | Accept | Reject | Method of<br>Inspection | Comments |
|--------|---------------------------------------|---------------|---------------------|--------|--------|-------------------------|----------|
| SIDE A | 5.88                                  | +/-0.030      | 5.880               | ✓      |        | CNC-08                  |          |
|        | 2.516                                 | +0.005/-0.000 | 2.518               | ✓      |        | CNC-04                  |          |
|        | 2.626                                 | +0.005/-0.000 | 2.629               | ✓      |        |                         |          |
|        | 2.627                                 | +0.005/-0.000 | 2.630               | ✓      |        |                         |          |
|        | 2.798                                 | +0.005/-0.000 | 2.801               | ✓      |        |                         |          |
|        | 2.799                                 | +0.005/-0.000 | 2.804               | ✓      |        |                         |          |
|        | 2.989                                 | +0.005/-0.000 | 2.993               | ✓      |        |                         |          |
|        | 3.191                                 | +0.005/-0.000 | 3.196               | ✓      |        | CNC-05                  |          |
|        | 3.200                                 | +0.005/-0.000 | 3.205               | ✓      |        | "                       |          |
|        |                                       |               |                     |        |        |                         |          |
| SIDE B | 5.88                                  | +/-0.030      | 5.880               | ✓      |        | CNC-08                  |          |
|        | 2.516                                 | +0.005/-0.000 | 2.519               | ✓      |        | CNC-04                  |          |
|        | 2.626                                 | +0.005/-0.000 | 2.631               | ✓      |        |                         |          |
|        | 2.627                                 | +0.005/-0.000 | 2.632               | ✓      |        |                         |          |
|        | 2.798                                 | +0.005/-0.000 | 2.803               | ✓      |        |                         |          |
|        | 2.799                                 | +0.005/-0.000 | 2.804               | ✓      |        |                         |          |
|        | 2.989                                 | +0.005/-0.000 | 2.994               | ✓      |        |                         |          |
|        | 3.191                                 | +0.005/-0.000 | 3.196               | ✓      |        | CNC-05                  |          |
|        | 3.200                                 | +0.005/-0.000 | 3.206               | ✓      |        | "                       |          |
|        |                                       |               |                     |        |        |                         |          |
|        | 105.71                                | +/-0.020      | 105.71              | ✓      |        | Tape                    |          |

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 2018-15 MJS

D119-796-241 XTUBE ASSY (AW119 MKII AFT)



- NOTES:
- 1) MATERIAL: N/A
  - 2) FINISH: MASK D5134-041/042 DAMPER SUPPORT ASSEMBLIES, CUFFS, D5138-1/2 CONTACT PADS, THE COMPLETE CIRCUMFERENCE OF THE TUBE UNDER THE D5122-1 CENTER SUPPORT AND THE TAB ON THE D5616-1 GROUNDING CLAMP PRIOR TO APPLICATION OF CLEAR COAT/PAINT.  
IF NECESSARY TOUCH UP PRIMER ON OUTSIDE OF CROSSTUBE PER DART QSI 005 4.2.  
APPLY MATTE CLEAR COAT TO THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA) PER QSI 005 4.2.  
MASK THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA).  
PAINT OUTSIDE PER DART QSI 005 4.2
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: N/A
  - 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-241" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
  - 7) WEIGHT: 28.28 lbs
  - 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.  
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
  - 9) INSTALL D5122-1 CENTER SUPPORT HAND TIGHT ONLY. DO NOT TORQUE. INSTALL RED TAG TO INDICATE "D5122-1 CENTER SUPPORT MUST BE BONDED PER IN-D119-796 PRIOR TO FLIGHT".
  - 10) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5138-1/2 AND SURFACE OF CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 880 ON THE INSIDE CONCAVE SURFACE OF THE D5138-1/2 CONTACT PADS AND INSTALL AT AN 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL MS21920-26 CLAMPS AND D5123-8 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS.
  - 11) TORQUE MS21920 CLAMPS 80 - 100 IN-LLB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY. THE NUT HAS NOT BOTTOMED-OUT AFTER TORQUING AND THE NUT IS FACING AFT.
  - 12) PRIOR TO FINISHING, POSITION AND INSTALL D5134-041/042 DAMPER SUPPORTS USING JIG DT10085. ABRASE MATING SURFACES OF THE D5134-041/042 DAMPER SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 880 ON THE INSIDE CONCAVE SURFACE OF THE D5134-041/042. INSTALL MS21920-26 CLAMPS AND D5123-1 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS. ENSURE THAT THE MS21920 CLAMPS ARE POSITIONED AS SHOWN IN DETAIL C.
  - 13) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5162-043 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH N' WIPE DEGREASER. INSTALL D5152-043 WITH LAYER OF PROSEAL 880 ON INSIDE CONCAVE SURFACE, 0.100" MIN THK LOCATE D5152-043 USING TOOL DT10112
  - 14) INSTALL THE D5615-1 GROUNDING CLAMP AND ASSOCIATED HARDWARE PER DETAIL "C" PRIOR TO FINISHING. TORQUE THE MS21042-3 NUT 12-15 IN-LLB. COMPLETELY SEAL THE EDGES OF THE CLAMP USING PROSEAL 880.
  - 16) CARRY OUT A RESISTANCE CHECK BETWEEN THE D5615-1 GROUNDING CLAMP AND ANY UNPAINTED SECTION OF THE CROSSTUBE IN ACCORDANCE WITH AC43-13-1B CHAPTER 11. MAXIMUM RESISTANCE IS 3 MILLIOHMS.

| REV.        | DESCRIPTION                                                                                                                                                                                                                                                 | BY | DATE     |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED

UNDER REVIEW  
URF 19-796 19.07.04 (SAD)

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

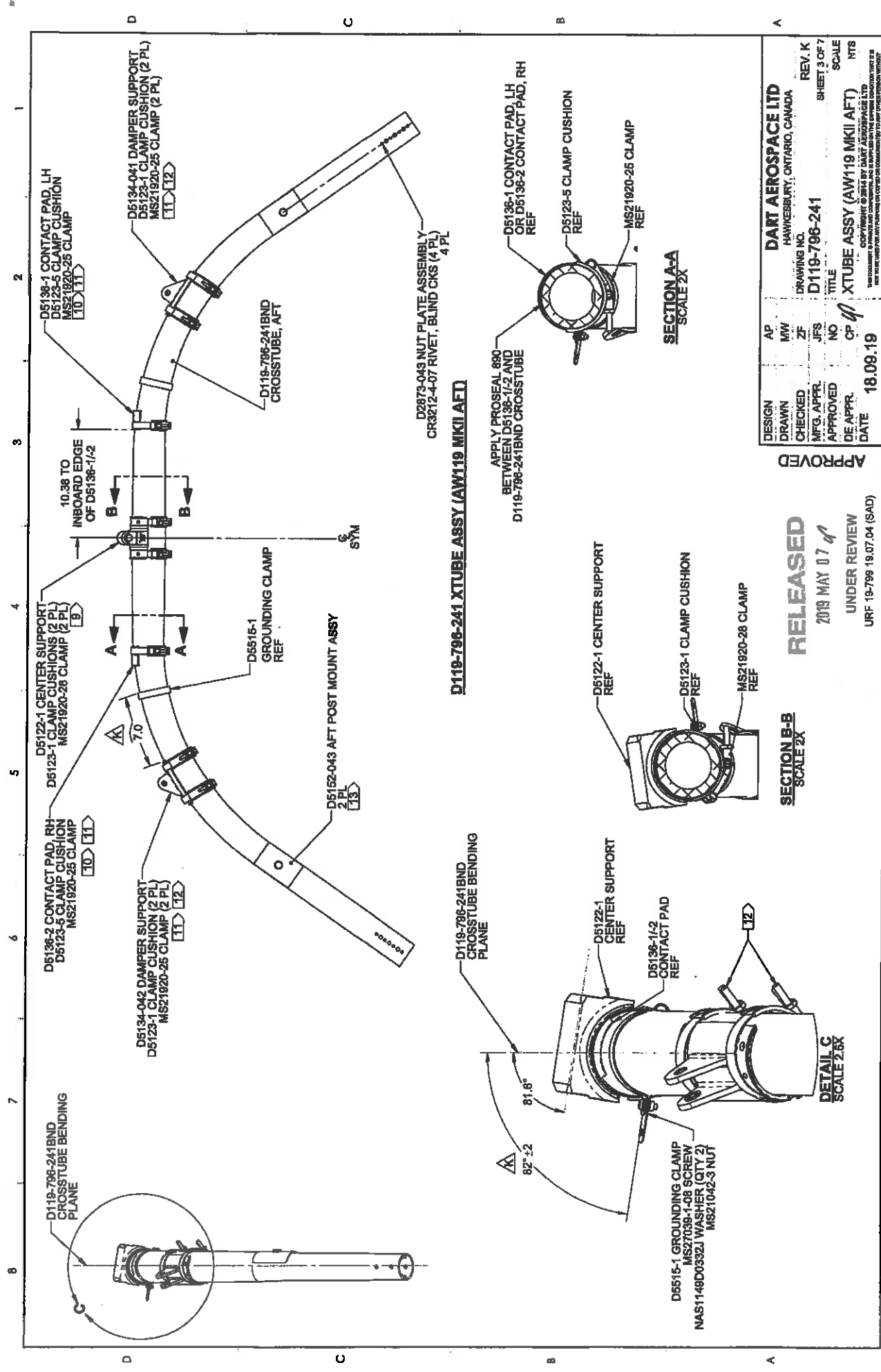
APPROVED

RELEASED

2018 MAY 07 d  
ZON M-75

|             |                                                                                                                                                                                                                                                             |    |          |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| DESIGN      | AP                                                                                                                                                                                                                                                          |    |          |
| DRAWN       | MW                                                                                                                                                                                                                                                          |    |          |
| CHECKED     | ZF                                                                                                                                                                                                                                                          |    |          |
| MFGS. APPR. | JFS                                                                                                                                                                                                                                                         |    |          |
| APPROVED    | NO                                                                                                                                                                                                                                                          |    |          |
| DE APPR.    | CP                                                                                                                                                                                                                                                          |    |          |
| DATE        | 18.09.19                                                                                                                                                                                                                                                    |    |          |
| A           | NEW ISSUE                                                                                                                                                                                                                                                   | AP | 14.08.07 |
| B           | ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-8 ADDED UNDER D5138-1/2 CONTACT PADS. D5123-1 CLAMP CUSHIONS ADDED TO CROSSTUBE. D5134-041/042 DAMPER SUPPORTS ADDED FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION. | AP | 14.08.08 |
| C           | CR3212-4-07 RIVETS WAS CR3212-4-08 RIVETS. RADIUS BLOCK WAS NUT PLATE ASSEMBLY (80M). REMOVED 7.6 DEG CUFF HOLE OFFSET (A1-3). REDUCED CUFF DIA TO 2.800 (C8-9). ADD INSPECTION WINDOW                                                                      | AP | 14.10.23 |
| D           | AUD D5160-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1. MODIFIED NOTES ON SH 18 3                                                                                                                                                              | DB | 14.11.26 |
| E           | D5152-043 WAS D5150-3. SCOTCH BRITE 7447 RED WAS 150 GRIT SANDPAPER                                                                                                                                                                                         | DB | 15.01.16 |
| F           | REMOVED PRIMER/PAINT ON CUFFS. 2.616 WAS 2.500 (C8-5)                                                                                                                                                                                                       | AP | 15.02.03 |
| G           | FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG                                                                                                                                                          | AP | 15.04.24 |
| H           | NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IN. BEE PREVIOUS REV FOR DETAILS.                                                                                                                                                                           | AP | 15.07.02 |
| I           | D5123-108 MATERIAL REPLACES D5009-108. D5138-1/2 & D5134-041/042 NOW INSTALLED ON PRIMER.                                                                                                                                                                   | AP | 15.10.13 |
| J           | ADD NOTE 14 & 15 ON SHT 1. ADD PAINT/PRIMER REMOVAL INSTRUCTIONS. REVISE NOTES ON SHT 1 & 2. REVISE BONDING INSTRUCTIONS TO ADD PRIMER/PAINT AND ASSOCIATED HARDWARE. REF PAR 17-880                                                                        | ML | 17.02.10 |
| K           | CHANGE LOCATION AND ORIENTATION OF D5615-1 GROUNDING CLAMP. REF CAR 16222                                                                                                                                                                                   | MW | 18.09.19 |

APPROVED



|                                   |          |          |    |     |    |    |      |          |
|-----------------------------------|----------|----------|----|-----|----|----|------|----------|
| DESIGN                            | AP       | MW       | ZF | JFS | NO | CP | DATE | 18.09.19 |
| DRAWN                             | CHECKED  | NO       | NO | NO  | NO | NO |      |          |
| MFG. APPR.                        | APPROVED | DE APPR. |    |     |    |    |      |          |
| DART AEROSPACE LTD                |          |          |    |     |    |    |      |          |
| HAWKESBURY, ONTARIO, CANADA       |          |          |    |     |    |    |      |          |
| DRAWING NO. D119-796-241          |          |          |    |     |    |    |      |          |
| SHEET 3 OF 7                      |          |          |    |     |    |    |      |          |
| TITLE XTUBE ASSY (AW119 MKII AFT) |          |          |    |     |    |    |      |          |
| SCALE NTS                         |          |          |    |     |    |    |      |          |
| REV. K                            |          |          |    |     |    |    |      |          |

**RELEASED**

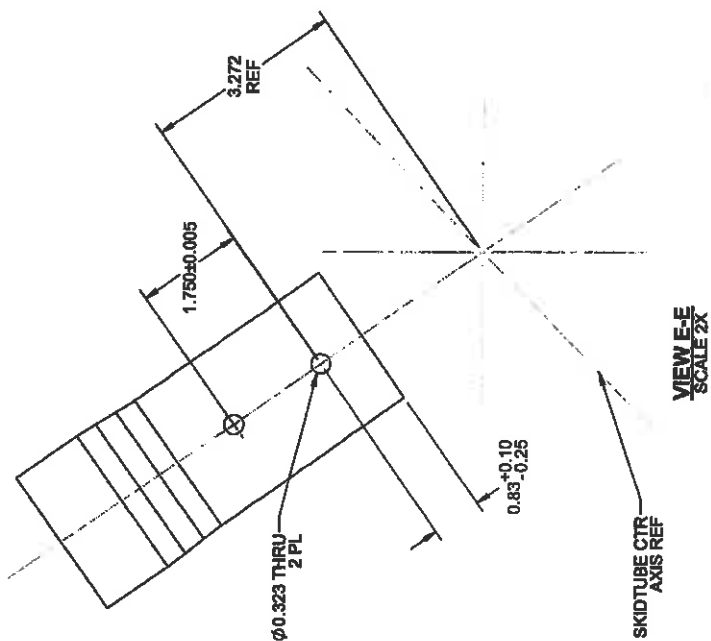
2019 MAY 07

UNDER REVIEW

URF 19-799 19.07.04 (SAD)

**APPROVED**

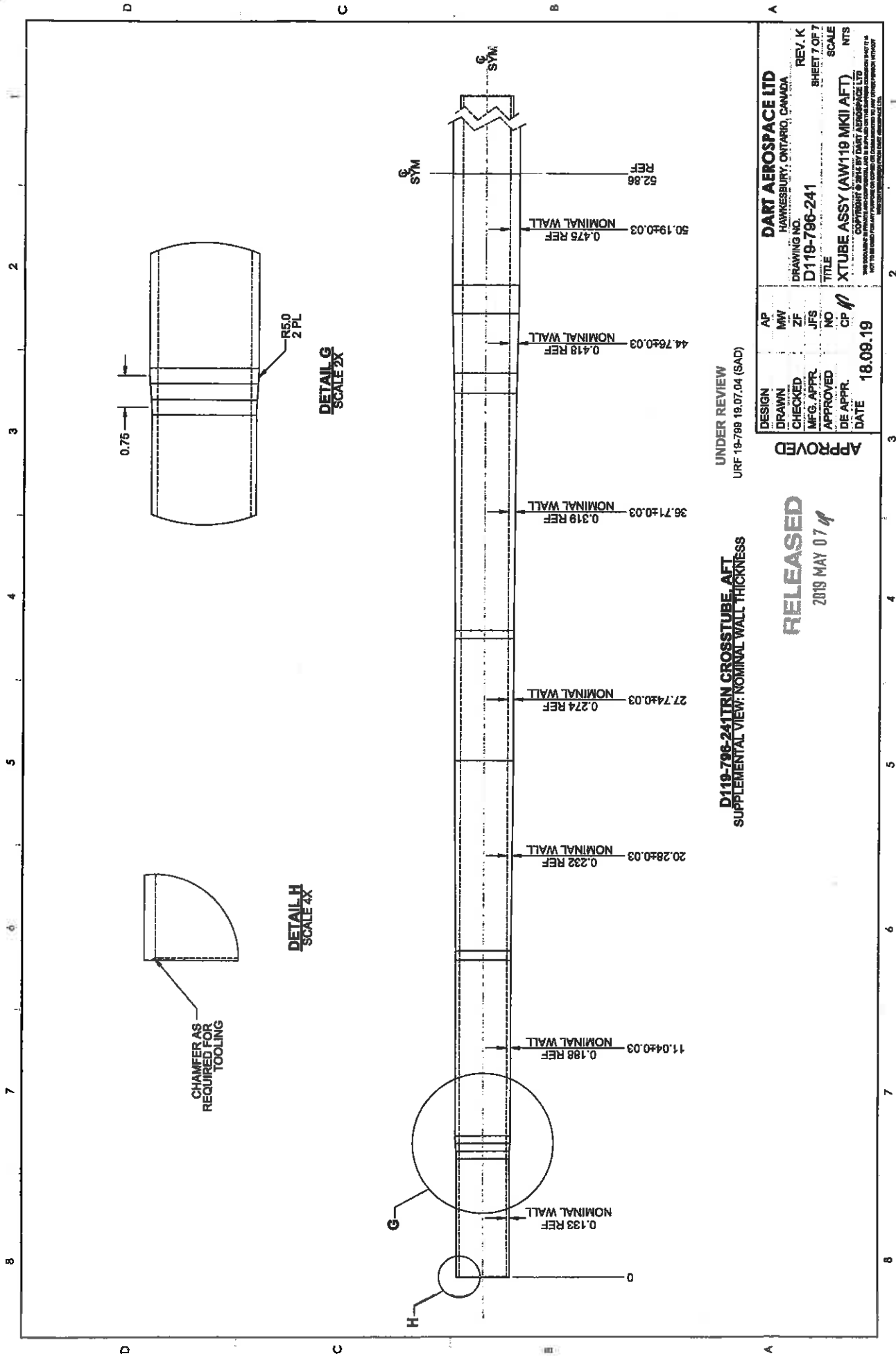




RELEASED

2019 MAY 07 

|            |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGN     | AP       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA<br><br>DRAWING NO.<br><b>D1119-796-241</b><br><br>TITLE<br><b>XTUBE ASSY (AW119 MKII AFT)</b><br><br>CONT'D FROM DART AEROSPACE LTD<br>THIS DOCUMENT IS PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED FOR THE PROJECT AND NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.<br>DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA |
| DRAWN      | MW       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| CHECKED    | ZF       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| MFG. APPR. | JFS      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| APPROVED   | NO       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DE APPR.   | CP       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DATE       | 18.09.19 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



**D119-796-241 TRN CROSSTUBE, AFT**  
SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS

UNDER REVIEW  
URF 19-789 19.07.04 (SAD)

**RELEASED**  
2019 MAY 07

|            |    |    |    |     |    |    |      |          |
|------------|----|----|----|-----|----|----|------|----------|
| DESIGN     | AP | MM | ZF | JFS | NO | CP | DATE | 18.09.19 |
| DRAWN      |    |    |    |     |    |    |      |          |
| CHECKED    |    |    |    |     |    |    |      |          |
| MFG. APPR. |    |    |    |     |    |    |      |          |
| APPROVED   |    |    |    |     |    |    |      |          |
| DE APPR.   |    |    |    |     |    |    |      |          |

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA  
REV. K  
DRAWING NO. D119-796-241  
SHEET 7 OF 7  
TITLE XTUBE ASSY (AW119 MKI AFT)  
SCALE NTS  
COMPONENT © 2019 BY DART AEROSPACE LTD  
THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD  
NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT  
WRITTEN PERMISSION FROM DART AEROSPACE LTD

Entered: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. \_\_\_\_\_

Route update only ☐



| Job: _____<br>Part No. _____                   |             | DISPOSITION                                                                                             |  |                                                       | DEPARTMENT/PROCESS                                                                                             |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
|------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|
|                                                |             | Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/> |  |                                                       | Skid-tube <input type="checkbox"/><br>Machining <input type="checkbox"/><br>Large Fab <input type="checkbox"/> |                                                          | Cross tube <input type="checkbox"/><br>Small Fab <input type="checkbox"/><br>Finishing <input type="checkbox"/> |                                             | Eng. (Non-AW) <input type="checkbox"/><br>Prod. Eng. Coord. <input type="checkbox"/><br>Rec/Store/Packaging <input type="checkbox"/> |                                            | Engineering <input type="checkbox"/><br>Water Jet <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Quality <input type="checkbox"/> |  |
| Date :                                         | Sequence #: | QTY Affected :                                                                                          |  | MRB (QSI042)                                          |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
| Description Work Order Deviation               |             |                                                                                                         |  | Disposition                                           |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
|                                                |             |                                                                                                         |  |                                                       |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
|                                                |             |                                                                                                         |  | Completed By                                          |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
|                                                |             |                                                                                                         |  | Lead hand / Supervisor                                |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
|                                                |             |                                                                                                         |  | QC / QA Coordinator                                   |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
| <b>Root Cause</b>                              |             |                                                                                                         |  | <b>FAULT CATEGORY</b>                                 |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |
| Operator <input type="checkbox"/>              |             |                                                                                                         |  | Pressure/Forced <input type="checkbox"/>              |                                                                                                                | Contamination <input type="checkbox"/>                   |                                                                                                                 | Power Loss/Surge <input type="checkbox"/>   |                                                                                                                                      | Positioned Wrong <input type="checkbox"/>  |                                                                                                                                                     |  |
| Manufacturing Process <input type="checkbox"/> |             |                                                                                                         |  | Bending <input type="checkbox"/>                      |                                                                                                                | Misaligned/off center <input type="checkbox"/>           |                                                                                                                 | Folio/Program <input type="checkbox"/>      |                                                                                                                                      | Outside Tolerance <input type="checkbox"/> |                                                                                                                                                     |  |
| Equip/Tooling <input type="checkbox"/>         |             |                                                                                                         |  | Crushing <input type="checkbox"/>                     |                                                                                                                | BOM/Route <input type="checkbox"/>                       |                                                                                                                 | Grain Direction <input type="checkbox"/>    |                                                                                                                                      | Drawing <input type="checkbox"/>           |                                                                                                                                                     |  |
| Handling/Preservation <input type="checkbox"/> |             |                                                                                                         |  | Cracks <input type="checkbox"/>                       |                                                                                                                | Broken/Damage/Defect <input type="checkbox"/>            |                                                                                                                 | Weld <input type="checkbox"/>               |                                                                                                                                      | Finish <input type="checkbox"/>            |                                                                                                                                                     |  |
| Material <input type="checkbox"/>              |             |                                                                                                         |  | Crimp/Kink/Ripple/Wave/Twist <input type="checkbox"/> |                                                                                                                | Incomplete/Unclear Instructions <input type="checkbox"/> |                                                                                                                 | Wrong Stock Pulled <input type="checkbox"/> |                                                                                                                                      | Part Lost/Missing <input type="checkbox"/> |                                                                                                                                                     |  |
| Product Improvement <input type="checkbox"/>   |             |                                                                                                         |  | Marks/Chatter <input type="checkbox"/>                |                                                                                                                | Drill Holes <input type="checkbox"/>                     |                                                                                                                 | Out of Sequence <input type="checkbox"/>    |                                                                                                                                      | Misread <input type="checkbox"/>           |                                                                                                                                                     |  |
| Process Improvement <input type="checkbox"/>   |             |                                                                                                         |  | Mislabeled <input type="checkbox"/>                   |                                                                                                                | Fit/Function <input type="checkbox"/>                    |                                                                                                                 | Off-set/Set-up <input type="checkbox"/>     |                                                                                                                                      |                                            |                                                                                                                                                     |  |
| Human Factors <input type="checkbox"/>         |             |                                                                                                         |  | Other/Details:                                        |                                                                                                                |                                                          |                                                                                                                 |                                             |                                                                                                                                      |                                            |                                                                                                                                                     |  |